

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 12 MAY 2005

WIPO

PCT

To:
SEMICONDUCTOR ENERGY LABORATORY
CO., LTD.

398, Hase, Atsugi-shi, Kanagawa
2430036 Japan

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **10.05.2005**

Applicant's or agent's file reference
00000PCT7731

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2005/002681

International filing date (day/month/year)

15.02.2005

Priority date (day/month/year)

17.02.2004

International Patent Classification (IPC) or both national classification and IPC

Int.Cl.⁷ B05D1/26, H01L21/28, 21/288, 21/3205, 21/336, 29/786

Applicant

SEMICONDUCTOR ENERGY LABORATORY CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion

19.04.2005

Name and mailing address of the ISA/JP

Japan Patent Office

3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

TAKASHI WATAHIKI

Telephone No. +81-3-3581-1101 Ext. 3460

4M 2934

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2005/002681

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/002681

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-22	YES
	Claims	1	NO
Inventive step (IS)	Claims	8, 13-15, 17-22	YES
	Claims	1-7, 9-12, 16	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

D1:JP 11-207959 A (SEIKO EPSON CORPORATION)1999.08.03,
WHOLE DOCUMENT,FIG.8 (FAMILY:NONE)
D2:JP 2003-59940 A (FUJI PHOTO FILM CO., LTD.) 2003.02.28,
WHOLE DOCUMENT,FIGS.1-4 (FAMILY:NONE)

[Claim 1]

The subject matter of claim 1 does not appear to be novel with respect to D1 cited in the ISR.

D1 discloses that the droplet flows into the lyophilic region from the non-lyophilic region and the amount of the droplet is enough to overflow from one lyophilic region.

Therefore the droplet flowing into the lyophilic region from the non-lyophilic region is a part of the droplet dropped on the non-lyophilic region.

[Claims 2-7, 9-12, 16]

The subject matter of claims 2-7, 9-12, 16 does not appear to involve an inventive step in view of D1 and D2.

The method of using a photocatalyst is known in the art for forming a lyophilic region and a non-lyophilic region, as described in D2.

[Claims 8, 13-15, 17-22]

The subject matters of claims 8, 13-15, 17-22 are neither disclosed in any of the documents cited in the ISR nor obvious to a person skilled in the art.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:
SEMICONDUCTOR ENERGY LABORATORY
CO., LTD.

398, Hase, Atsugi-shi, Kanagawa
2430036 Japan

REC'D 12 MAY 2005

WIPO

PCT

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) **10.05.2005**

Applicant's or agent's file reference
00000PCT7731

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2005/002681

International filing date (day/month/year)

15.02.2005

Priority date (day/month/year)

17.02.2004

International Patent Classification (IPC) or both national classification and IPC

Int.Cl.⁷ B05D1/26, H01L21/28, 21/288, 21/3205, 21/336, 29/786

Applicant

SEMICONDUCTOR ENERGY LABORATORY CO., LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Date of completion of this opinion

19.04.2005

Name and mailing address of the ISA/JP

Japan Patent Office
3-4-3, Kasumigaseki, Chiyoda-ku, Tokyo 100-8915, Japan

Authorized officer

TAKASHI WATAHUKI

Telephone No. +81-3-3581-1101 Ext. 3460

4M 2934

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/002681

Box No. I Basis of the opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2005/002681

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2-22	YES
	Claims	1	NO
Inventive step (IS)	Claims	8, 13-15, 17-22	YES
	Claims	1-7, 9-12, 16	NO
Industrial applicability (IA)	Claims	1-22	YES
	Claims		NO

2. Citations and explanations

D1: JP 11-207959 A (SEIKO EPSON CORPORATION) 1999.08.03,
WHOLE DOCUMENT, FIG. 8 (FAMILY: NONE)

D2: JP 2003-59940 A (FUJI PHOTO FILM CO., LTD.) 2003.02.28,
WHOLE DOCUMENT, FIGS. 1-4 (FAMILY: NONE)

[Claim 1]

The subject matter of claim 1 does not appear to be novel with respect to D1 cited in the ISR.

D1 discloses that the droplet flows into the lyophilic region from the non-lyophilic region and the amount of the droplet is enough to overflow from one lyophilic region.

Therefore the droplet flowing into the lyophilic region from the non-lyophilic region is a part of the droplet dropped on the non-lyophilic region.

[Claims 2-7, 9-12, 16]

The subject matter of claims 2-7, 9-12, 16 does not appear to involve an inventive step in view of D1 and D2.

The method of using a photocatalyst is known in the art for forming a lyophilic region and a non-lyophilic region, as described in D2.

[Claims 8, 13-15, 17-22]

The subject matters of claims 8, 13-15, 17-22 are neither disclosed in any of the documents cited in the ISR nor obvious to a person skilled in the art.